

Chicago Valves & Controls



SERIES 89/FS89

FLANGED FULL PORT

BALL VALVE CLASS 150/300

316 STAINLESS STEEL - ASTM A351

CARBON STEEL - ASTM A216 WCB

ALLOY 20 - ASTM A351 CN7M

LIVE LOADED STEM

ANTI-STATIC DEVICE

LOCKABLE HANDLE

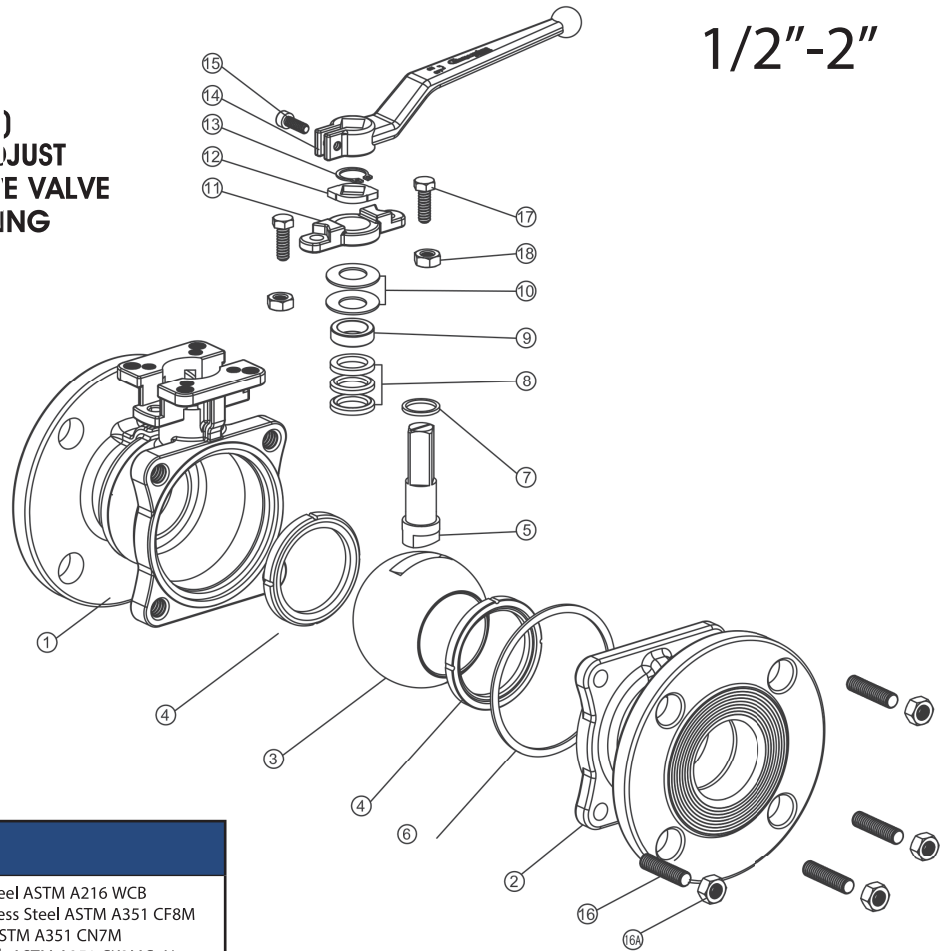
DIRECT MOUNTED PAD (1/2"-4")

ELEVATED PAD ALLOWED TO ADJUST GLAND PACKING FLANGE WHILE VALVE IS IN SERVICE WITHOUT REMOVING ACTUATOR OR HANDLE

API 608 (1/2"-4")

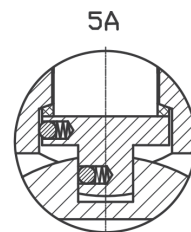
Series 89

1/2"-2"



PARTS & MATERIAL

PART NO.	PART NAME	QTY.	MATERIAL
1	Body	1	Carbon Steel ASTM A216 WCB 316 Stainless Steel ASTM A351 CF8M Alloy 20 ASTM A351 CN7M SMO 254 * ASTM A351 CK3MCuN
2	End Piece	1	Carbon Steel ASTM A216 WCB 316 Stainless Steel ASTM A351 CF8M Alloy 20 ASTM A351 CN7M SMO 254 * ASTM A351 CK3MCuN
3	Ball	1	316 Stainless Steel Alloy 20 SMO 254 *
4	Seat	2	TFM®, XM, PEEK
5	Stem	1	316 Stainless Steel, Alloy 20, 17-4PH SMO 254 *
5A	Anti-Static Device Spring Loaded Ball	2	300 Series Stainless Steel Hard Drawn Stainless Steel
6	Body Seal	1	PTFE, Graphite
7	Thrust Washer	1	TFM®, PEEK
8	Stem Packing	3	TFM®, XM, Graphite
9	Gland	1	300 Series Stainless Steel
10	Belleville Washer	2	300 Series Stainless Steel
11	Gland Flange	1	304 Stainless Steel ASTM A351 CF8
12	Travel Stop	1	300 Series Stainless Steel
13	Snap Ring	1	300 Series Stainless Steel
14	Handle	1	300 Series Stainless Steel
15	Handle Bolt	1	300 Series Stainless Steel
16	Body Stud	See N in Dimension Table	B7 ASTM A193 GR B8MA
16A	Body Nut		2H ASTM A194 GR 8A
17	Gland Flange Bolt	2	B7 ASTM A193 GR B8MA
18	Gland Bolt Nut	2	2H ASTM A194 GR 8A

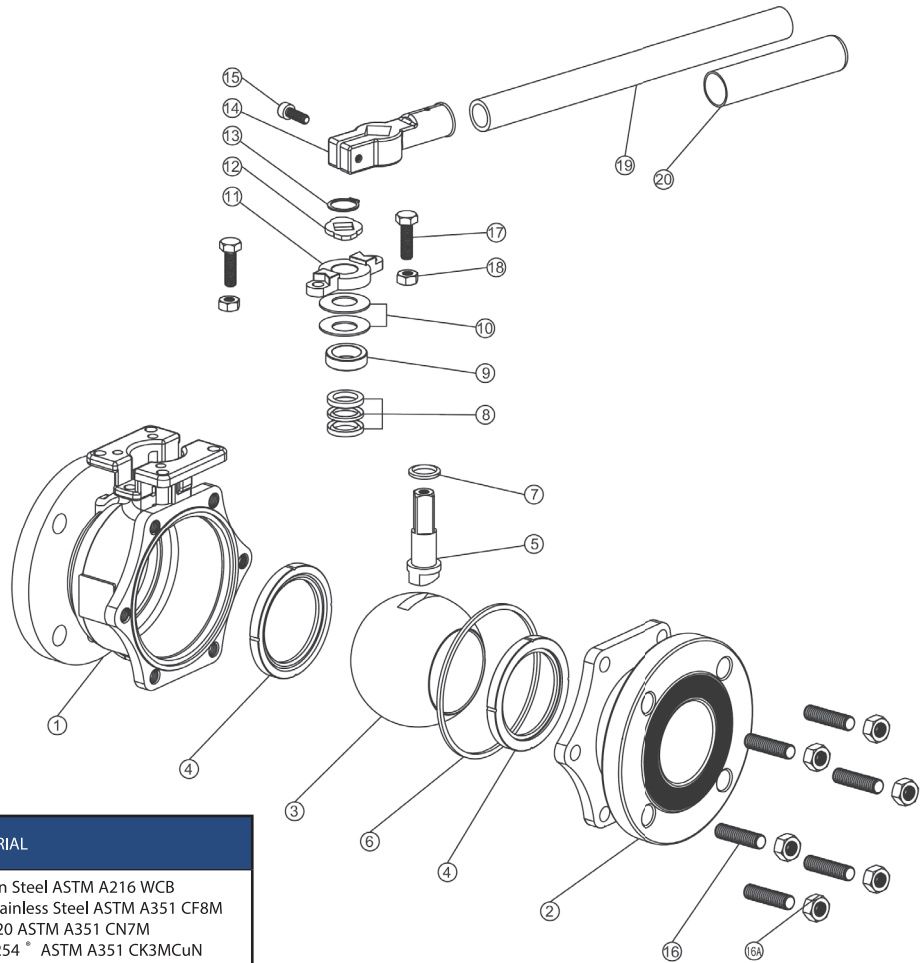


Anti-static device

APPLICABLE STANDARDS

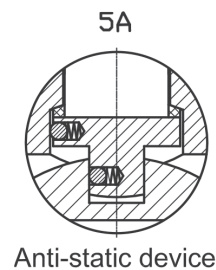
BASIC DESIGN	ASME B16.34
FACE TO FACE DIMENSION	ASME B16.10
FLANGE DIMENSIONS	ASME B16.5
TEST	API 598
MOUNTED PADS DIEM	ISO 5211
FIRE SAFE	API 607 6TH EDITION (FIRE SAFE ONLY)
NACE	MR-0175 (WITH 316 STAINLESS STEEL STEM)

21/2"-4"



PARTS & MATERIAL

PART NO.	PART NAME	QTY.	MATERIAL
1	Body	1	Carbon Steel ASTM A216 WCB 316 Stainless Steel ASTM A351 CF8M Alloy 20 ASTM A351 CN7M SMO 254 * ASTM A351 CK3MCuN
2	End Piece	1	Carbon Steel ASTM A216 WCB 316 Stainless Steel ASTM A351 CF8M Alloy 20 ASTM A351 CN7M SMO 254 * ASTM A351 CK3MCuN
3	Ball	1	316 Stainless Steel Alloy 20 SMO 254 *
4	Seat	2	TFM®, XM, PEEK
5	Stem	1	316 Stainless Steel, Alloy 20, 17-4PH SMO 254 *
5A	Anti-Static Device Spring Loaded Ball	2	300 Series Stainless Steel Hard Drawn Stainless Steel
6	Body Seal	1	PTFE, Graphite
7	Thrust Washer	1	TFM®, PEEK
8	Stem Packing	3	TFM®, XM, Graphite
9	Gland	1	300 Series Stainless Steel
10	Belleville Washer	2	300 Series Stainless Steel
11	Gland Flange	1	304 Stainless Steel ASTM A351 CF8
12	Travel Stop	1	300 Series Stainless Steel
13	Snap Ring	1	300 Series Stainless Steel
14	Handle	1	300 Series Stainless Steel
15	Handle Bolt	1	300 Series Stainless Steel
16	Body Stud	See N in Dimension Table	B7 ASTM A193 GR B8MA
16A	Nut		B7 ASTM A193 GR B8MA
17	Gland Flange Bolt	2	B7 ASTM A193 GR B8MA
18	Gland Bolt Nut	2	2H ASTM A194 GR 8A
19	Handle	1	300 Series Stainless Steel
20	Handle Sleeve	1	PVC



Anti-static device

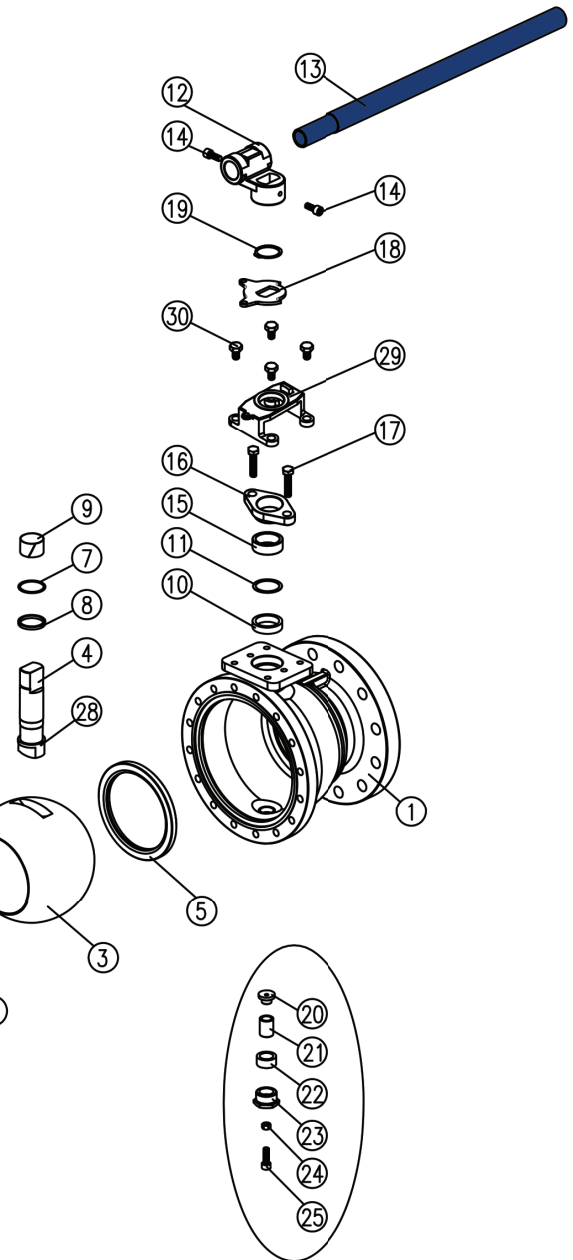
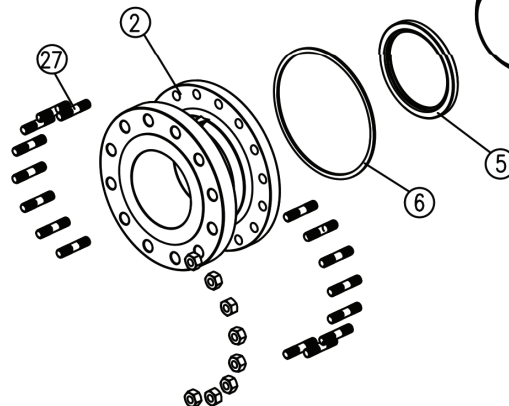
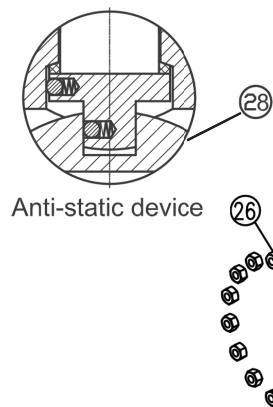
APPLICABLE STANDARDS

BASIC DESIGN	ASME B16.34
FACE TO FACE DIMENSION	ASME B16.10
FLANGE DIMENSIONS	ASME B16.5
TEST	API 598
MOUNTED PADS DIEM	ISO 5211
FIRE SAFE	API 607 6TH EDITION (FIRE SAFE ONLY)
NACE	MR-0175 (WITH 316 STAINLESS STEEL STEM)

PARTS & MATERIAL

PART NO.	PART NAME	QTY.	MATERIAL
1	Body	1	Carbon Steel ASTM A216 WCB 316 Stainless Steel ASTM A351 CF8M
2	End Piece	1	Carbon Steel ASTM A216 WCB 316 Stainless Steel ASTM A351 CF8M
3	Ball	1	316 Stainless Steel
4	Stem	1	316 Stainless Steel
5	Seat	2	RTFE
6	Body Seal	1	316 SS / Graphite Sprial Wound
7	Thrust Washer	1	RTFE
8	Thrust Washer	1	50% PTFE/50% 316 Stainless Steel
9	Stem Bearing	1	RTFE
10	Stem Packing (1)	3-4	Graphite
11	Stem Packing (2)		Graphite
12	Wrench Block*	1	Carbon Steel
13	Handle, Pipe*	1	Ductile Iron
14	Handle, Bolt*	2	C.S
15	Sleeve	1	Steel 304 Stainless Steel
16	Gland Flange	1	Carbon Steel ASTM A216 WCB 316 Stainless Steel ASTM A351 CF8M
17	Gland Bolt	2	Steel 300 Series Stainless Steel
18	Travel Stop	1	Zinc Plated Steel 300 Series Stainless Steel
19	Snap Ring	1	Nickel Plated Carbon Steel
20	Ball Support Seat	1	RTFE
21	Ball Support Pin	1	316 Stainless Steel
22	Ball Support Packing	1	Graphite
23	Ball Support Nut	1	300 Series Stainless Steel
24	Set Nut	1	300 Series Stainless Steel
25	Tuning Screw	1	300 Series Stainless Steel
26	Body Nut	See N in Dimension Table	2HM ASTM A194 Gr 8A 8MA ASTM A194 Gr 2HM
27	Body Stud	See N in Dimension Table	B7M ASTM A193 Gr B8MA B8A ASTM A193 Gr B7M
28	Anti-Static	2	316 Stainless Steel
29	Stop Housing	1	Carbon Steel ASTM A216 WCB 304 Stainless Steel ASTM A351 CF8M
30	Screw	4	Steel 304 Stainless Steel

* Ball Support for:
Class 150 10"-12"
Class 300 6"-12"



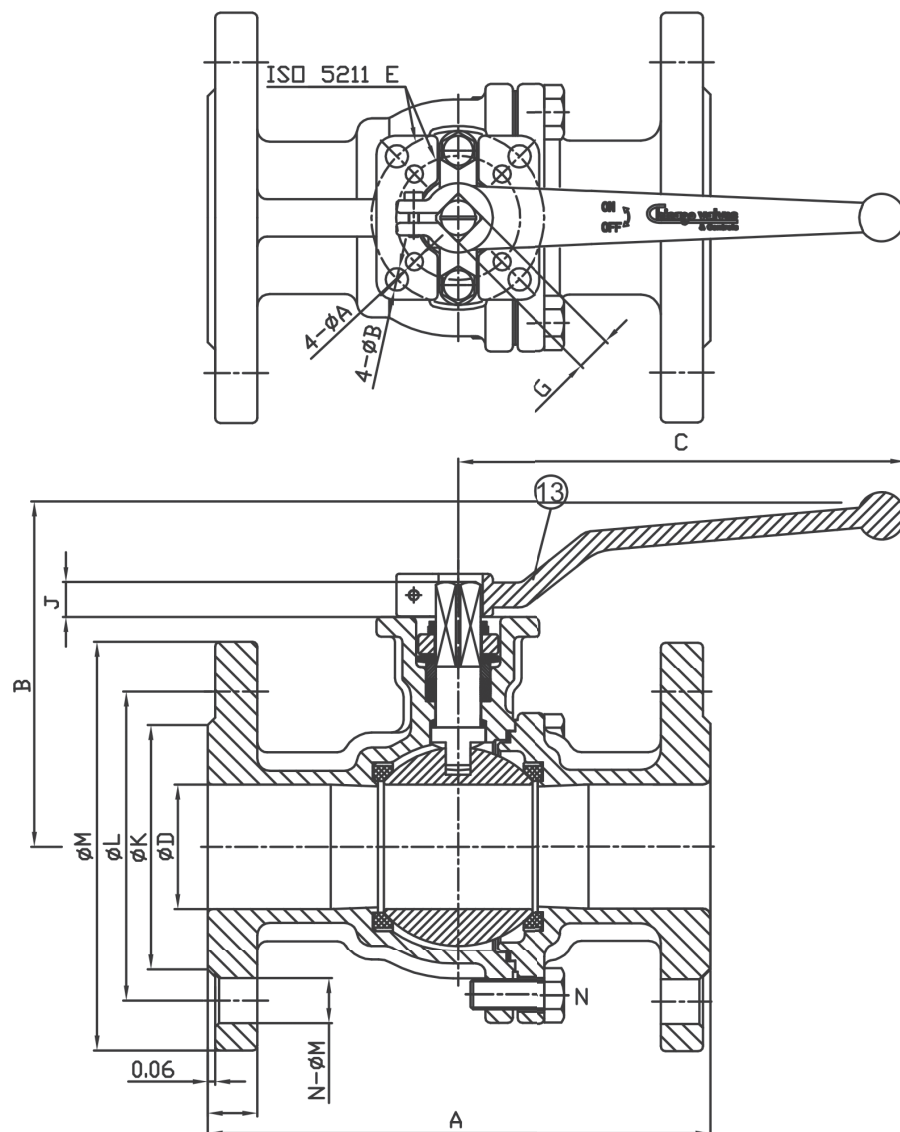
Series 89

6"-12"

APPLICABLE STANDARDS

BASIC DESIGN	ASME B16.34
FACE TO FACE DIMENSION	ASME B16.10
FLANGE DIMENSIONS	ASME B16.5
TEST	API 598
MOUNTED PADS DIEM	ISO 5211
FIRE SAFE	API 607 4TH EDITION (FIRE SAFE ONLY)
NACE	MR-0175 (WITH 316 STAINLESS STEEL STEM)

Series 89

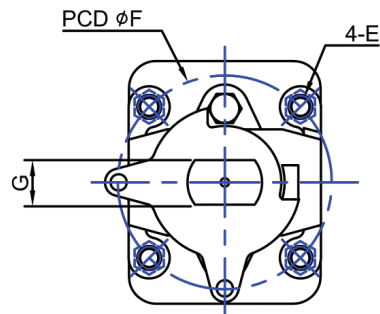
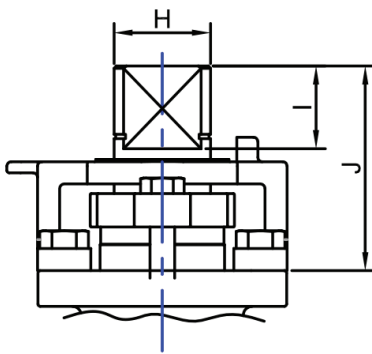
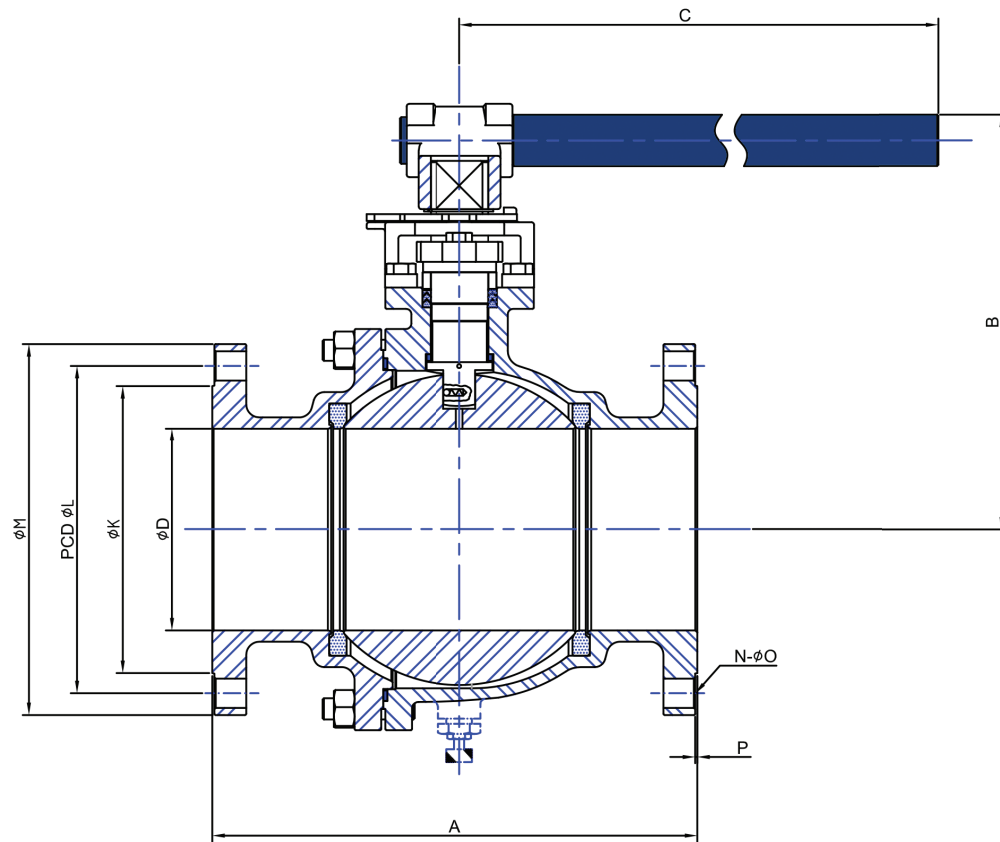


SIZE	CV (GPM)	WEIGHT (LBS)	
		150LB	300LB
1/2"	26	4.30	5.54
3/4"	50	4.74	7.61
1"	94	6.94	10.36
1 1/2"	260	12.74	19.16
2"	480	19.22	22.02
2 1/2"	750	30.31	38.80
3"	1300	39.84	52.27
4"	2300	63.32	90.37

DIMENSIONS (INCHES)

SIZE	A		B		C	D	E	E	F	G	ISO 5211	J	K	L		M		N-ØM	
	150LB	300LB	150LB	300LB										150LB	300LB	150LB	300LB	150LB	300LB
1/2"	4.25	5.50	3.55	3.55	4.84	0.59	0.24	0.24	1.42-1.65	0.35	F03-F04	0.35	1.38	2.38	2.62	3.50	3.74	4-□	4-□
3/4"	4.62	6.0	3.94	3.94	4.84	0.79	0.24	0.24	1.42-1.65	0.35	F03-F04	0.35	1.69	2.76	3.25	3.86	4.61	4-□	4-□
1"	5.0	6.50	4.22	4.22	6.02	0.98	0.24	0.28	1.65-1.97	0.43	F04-F05	0.43	2.01	3.13	3.50	4.25	4.88	4-□	4-□
1 1/2"	6.50	7.50	5.51	5.51	7.20	1.57	0.28	0.35	1.97-2.76	0.55	F05-F07	0.55	2.87	3.88	4.51	5.0	6.14	4-□	4-□
2"	7.0	8.50	5.75	5.75	7.20	1.97	0.28	0.35	1.97-2.76	0.55	F05-F07	0.35	3.62	4.74	5.0	5.98	6.50	4-□	8-□
2 1/2"	7.50	9.50	6.06	6.45	13.86	2.56	0.35	0.43	2.76-4.02	0.67	F07-F10	0.67	4.13	5.49	5.87	7.01	7.48	6-□	8-□
3"	8.0	11.12	6.50	6.89	13.86	3.15	0.35	0.43	2.76-4.02	0.67	F07-F10	0.67	5.0	6.0	6.61	7.48	8.27	6-□	8-□
4"	9.0	12.00	7.20	7.59	15.63	3.94	0.43	0.51	4.02-4.92	0.87	F10-F12	0.87	6.18	7.50	7.87	9.02	10.0	8-□	8-□

Series 89



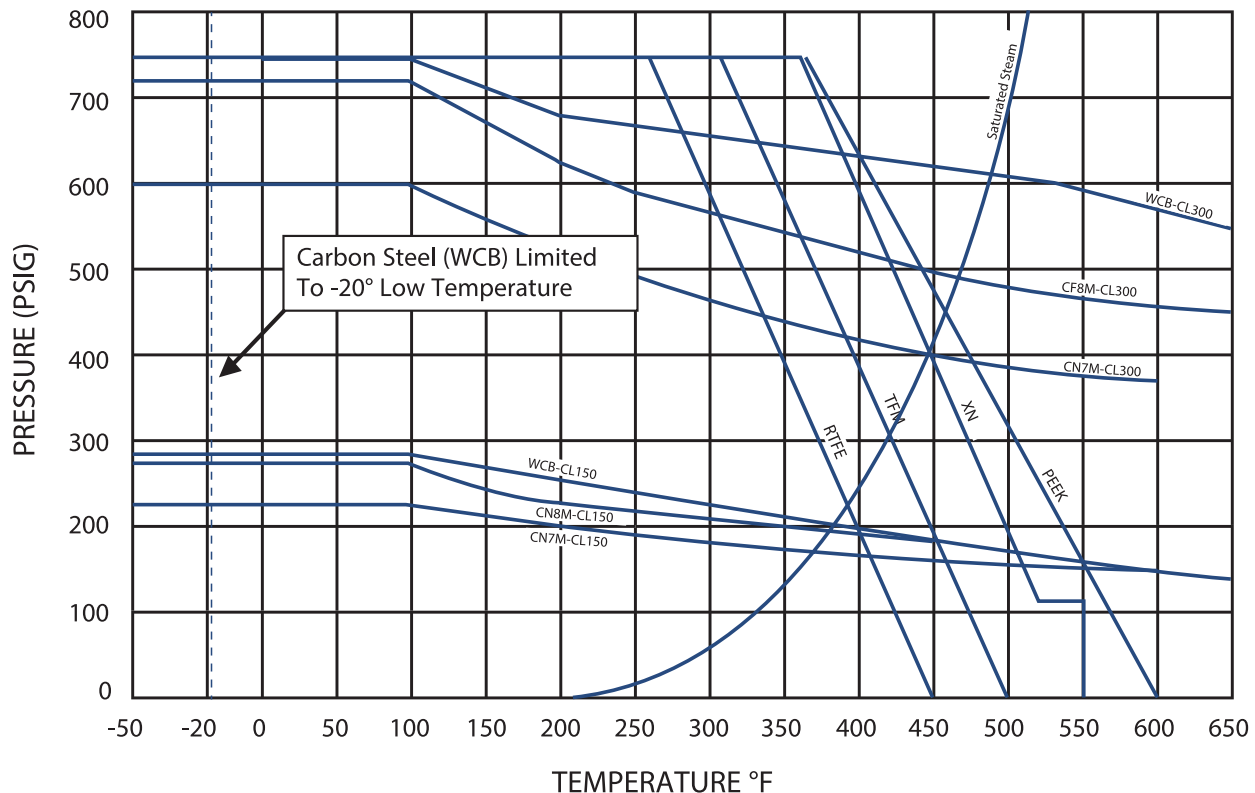
Mounting Dimensions

	150	300	150	300
SIZE	CV (GPM)	CV (GPM)	WEIGHT (LBS)	WEIGHT (LBS)
6"	5000	5000	169.32	240.52
8"	9600	9600	292.33	380.30
10"	15000	15000	540.13	703.27
12"	21000	21000	656.98	859.80

DIMENSIONS (INCHES)

Class	150	300	150	300											150	300	150	300	150	300	150	300	150	300
Size	A	A	B	C	C	D	E	F	G	H	H	I	J	K	L	L	M	M	N	N	O	O	O	O
6"	15.5	15.8	11.22	11.22	25.59	5.98	1/2-13UNC/M12	4.92	1.02	1.71	1.71	1.65	3.58	8.50	9.51	10.63	10.98	12.52	8	16	0.87	0.87		
8"	18	19.75	11.57	12.72	37.40	7.87	1/2-13UNC/M12	4.92	1.02	1.71	1.71	1.65	3.58	10.63	11.75	12.99	13.50	15.00	10	16	0.87	0.98		
10"	21	22.38	14.65	14.49	14.49	9.84	5/8-11UNC/M16	5.51	1.38	1.97	2.17	2.13	3.86	12.76	14.25	15.26	15.98	17.48	16	20	0.98	1.14		
12"	24	25.5	16.26	16.06	16.06	11.81	5/8-11UNC/M16	5.51	1.38	1.97	2.17	2.13	3.86	15.00	17.01	17.76	19.02	20.51	16	20	0.98	1.26		

PRESSURE-TEMPERATURE RATINGS SERIES 89



Note:

The maximum pressure/temperature ratings of the valve assemblies are limited to lowest of the body or seat material fitted. The body ratings are based on ASME B16.34 rating for materials. The graphs are based on laboratory testing and our experience in field. The seat ratings depend on the material, design, application and function.

Chicago Valves & Controls[®] Seat Materials

M-TFM[®] PTFE

Dyneon TFME[®] PTFE is a second generation PTFE with improved chemical and heat resistant properties and stress recovery. Its temperature range is -100°F to 500°F (-73°C to 260°C) Color - white.

R-Reinforced Polytetrafluoroethylene (RTFE).

PTFE's mechanical properties are enhanced by adding 15% filler material to provide improved strength, stability and wear resistance. Its temperature range is from -320°F to 450°F (-196°C to 232°C). Color-off-white.

XN - is a free-flowing compound based on TFME[®] containing electro-graphitized carbon. It features: increased thermal dimensional stability and surface hardness, improved deformation under load, reduced friction and wear, and good chemical stability. It has a high limiting oxygen index (LOI), low coefficient of friction, very good mechanical properties and exceptional temperature resistance. It is used as a seat material in chemical processing and automotive industries. It is ideal to with steam and thermal fluid applications up to 550°F (228°C) and as low as -40°F (-40°C). Color-black.

P-PEEK (Unfilled) Polyetheretherketone

PEEK Polymer offers a unique combination of chemical, mechanical and thermal properties. Excellent for water and steam application at elevated temperatures up to 600°F (315°C). Color - beige.

Other seat materials

Other seat materials are available according to the application, such as very high temperature or cryogenic conditions.

HOW TO ORDER

1"	FS89	6	6	6	R	G	G	3	X	OH
Size	Series	Body & Ends	Ball	Stem	Seats	Body Seal	Stem Packing	Class	Service	Options
SIZE	SERIES	BODY & ENDS				BODY-SEAL			SERVICE	
1/2"	89-Full Port	6 316 Stainless Steel				T PTFE			X Oxygen Service (CVAC Standards)	
3/4"	*FS89-Fire Safe	4 Carbon Steel				G Graphite			SF Silicone FREE	
1"		2 Alloy 20								
1 1/2"										
2"			BALL				STEM PACKING			OPTIONS
2 1/2"			6 316 Stainless Steel			M TFM			OH Oval Handle (Up to 2")	
3"			2 Alloy 20			X XN**			VB Vented Ball	
4"						G Graphite			SH Spring Loaded Handle (Up to 2")	
6"										
8"		STEM						CLASS		
10"		6 316 Stainless Steel				1 150RF				
12"		2 Alloy 20				3 300RF				
		7 17-4PH				1F 150FF				
			SEATS			3F 300FF				
			M TFM*			1B 150BW***				
			X XN*			3B 300BW***				
			R RTFE 15% Glass Filled			1BB 150BW****				
			P PEEK			3BB 300BW****				

*Fire Safe Must Use Graphite Body Seals & Stem Packing, TFM[®], XN, SEATS.

****XN - Carbon Fill TFM** ®

***One End

****Both Ends